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FOREST INSECT INFESTATIONS OF THE
SALMON NATIONAL FOREST
SURVEY REPORT
1939

by

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ANALYSIS OF 1939 SURVEY DATA
AND
RECOMMENDATIONS FOR CONTROL

by

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Coeur d'Alene, Idaho
December 15, 1939

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SUBJECT-

INDEX No.-

FOREST INSECT INFESTATIONS OF THE
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Early in the summer of 1939 Assistant Regional Forester Robb and Associate Regional Forester Rice visited timbered areas in the north fork of the Salmon River and other tributaries of the Salmon on the Salmon National Forest and reported a comparatively large number of trees being killed from forest insect attacks. As a result of their observations a request was made for a more comprehensive examination by the Bureau of Entomology and Plant Quarantine.

A three-man crew started work on the forest October 12 and finished October 25, making extensive examinations by the sample-strip method in 14 areas having a total of 83,680 acres to determine the extent of the infestation of the western pine beetle in the ponderosa pine stands and of the Douglas fir beetle in the fir stands.

A list of the areas surveyed, with a summary of the data secured, is given in the following table. The location and size of the units will be shown on the enclosed photographic map.

Unit	Approx. : timber : average :	Green stand : per acre :		Inf. trees : per acre :		% of stand : killed :		Inf. trees : on unit :	
		P.P. :	D.F. :	P.P. :	D.F. :	P.P. :	D.F. :	P.P. :	D.F. :
Colson Cr.	4,480	14.6	4.5	.276	.013	1.9	.3	1,236	58
Owl Cr.	8,000	11.8	2.6	.078	0	.6	0	624	0
Clear Cr.	6,400	4.5	7.1	.054	0	1.2	0	346	0
Pine Cr.	2,560	6.8	7.1	.025	0	.4	0	64	0
Spring Cr.	7,040	14.8	7.2	.170	.034	1.1	.5	1,197	239
Squaw Cr.	5,280	11.3	6.8	.087	0	.8	0	459	0
Indian Cr.	2,880	1.6	3.3	0	0	0	0	0	0
Sage Cr.	1,920	20.8	8.5	0	0	0	0	0	0
Silverlead Cr.	2,560	2.1	7.3	0	0	0	0	0	0
Wagonhammer Cr.	1,920	14.8	12.7	.036	0	.2	0	69	0
Hull Cr.-Bills Can.	4,160	8.9	11.7	.024	0	.3	0	100	0
Hughe's Cr.	5,120	15.3	4.7	0	0	0	0	0	0
Gibbonsville	12,160	9.5	8.1	.014	.007	.15	.1	170	85
Panther Cr.	19,200	2.5	14.2	.014	.110	.5	.8	269	2112
Total	83,680	9.1	7.8	.054	.030	.59	.40	4,534	2494

Each drainage has been treated as a separate unit area because they are more or less isolated from the others and, individually, show a variation in infestation status. The units listed cover practically all of the timbered areas adjacent to the Salmon River and contain nearly all of the ponderosa pine stands of the forest.

The timbered stands surveyed are predominantly ponderosa pine,

although Douglas fir was recorded in all units and predominated in several. Very few trees of other species were seen in the areas surveyed, although some observations were made in the lodgepole stands in the Panther creek drainage and in the whitebark pine of Spring Creek.

Each unit will be discussed separately and the complete data taken will be given in the following report.

COLSON CREEK

4,480 Acres

		Trees on strip					Trees per acre of strip				
		New attacks					Green trees				
		P.Pine:					P.Pine::				
No. of	of	:Generation:					:Generation:				
strips	strip	1st	2nd	D.F.:	P.P.:	D.F.	1st	2nd	D.F.:	P.P.:	D.F.
4	76	9	12	1	1110:	344	.118:	.158:	.013	14.6:	4.5

Total number of infested trees for unit: P.P., 1st generation 528
 2nd " 708
 Total 1,236
 D.F. 58

Percent of stand killed 1939: P.P. 1.9
 D.F. .3

The Colson Creek unit lies on the north side of the Salmon River about five miles above the mouth of the Middle fork of the Salmon. The stand is composed of ponderosa pine, Douglas fir, and lodgepole pine. There is also a scattering of white fir and spruce in the upper end of the drainage. The type runs from 95 percent ponderosa pine, 5 percent Douglas fir in the lower end of the drainage to 70 percent ponderosa, 30 percent Douglas fir in the upper end. Near the head of the drainage

lodgepole pine begins to predominate and at a higher level the type changes to pure lodgepole.

The estimated total of 1,236 infested ponderosa pine seems a little high after looking at the drainage as a whole, because most of the infested trees are confined to the lower end of the drainage and seem to be below a definite level. The infestation occurs singly and in small groups of trees. Apparently the destruction of timber was greatest about 1935, as there is considerable evidence of past kill which is several years old.

Two ponderosa pine were recorded as having been attacked by the mountain pine beetle. These trees were in the upper end of the drainage where the ponderosa pine is mixed with the lodgepole stands.

OWL CREEK

8,000 Acres

		Trees on strip					Trees per acre of strip				
		New attacks					New attacks				
		P.Pine					P.Pine				
No. of	of	Generation					Generation				
strips	strip	1st	2nd	D.F.	P.P.	D.F.	1st	2nd	D.F.	P.P.	D.F.
3	103	4	4	0	1,220	271	.039	.039	0	11.8	2.6

Total number of infested trees for unit: P.P., 1st generation 312
 2nd " 312
 Total 624

D.F. 0

Percent of stand killed 1939: P.P. .6
 D.F. .0

The timber type in the Owl Creek area was found to be 85 percent ponderosa pine and 15 percent Douglas fir. The stands are scattered throughout the drainage, which is very steep and rocky and extends high up on the rocky ridges.

Most of the infestation was recorded as being on the more open, dryer sites along the ridge points and, as in the Colson drainage, along a rather definite band below a certain elevation. More 1939 attacks were reported off the sample strips examined than were recorded on them, which may indicate a somewhat higher amount of infestation than the estimate given. The infestation is reported to be only about two years old and seemingly increasing to some extent. Several trees examined were apparently being killed by a small flathead borer--probably a species of *Melanophila*.

CLEAR CREEK

6,400 Acres

		Trees on strip					Trees per acre of strip				
		New attacks					New Attacks				
		Green trees					Green trees				
		P.Pine					P.Pine				
		Generation					Generation				
No. of strips	of strip	1st	2nd	D.F.	P.P.	D.F.	1st	2nd	D.F.	P.P.	D.F.
1	74	0	4	0	330	528	0	.054	0	4.4	7.1

Total number of infested trees for unit: P.P., 1st generation none
 2nd " 346
 Total 346
 D.F. none

Percent of stand killed 1939: P.P. 1.2
 D.F. none

The Clear Creek unit includes an area of 2,000 acres in Garden Creek, because these drainages were worked together as one unit. These two drainages are separated by a high barren ridge that extends up to the Sagebrush Springs lookout. The timber stands are largely Douglas fir and extend from a point two miles from the mouth of the Clear Creek to the head of the drainage. However, the type changes into Douglas fir-lodgepole and later into lodgepole in the upper part of the

drainage. The stands in Garden Creek are confined largely to a narrow strip along the creek.

The only infestation recorded in this area was in the Clear Creek drainage and is confined to the ridge tops on the north side of the creek. An area of approximately one acre in extent was recorded as having suffered a 90 percent kill in the past six years. Only 2 1939 attacks were found near this area and it is reported that the infestation has apparently declined during the past two years. Two additional 1939-attacked trees were recorded in the Clear Creek drainage as single infested trees on dry sites. Several small areas of past infestation were seen in the drainage with only an occasional recently attacked tree, which indicates that the infestation reached its peak several years ago and has subsided to a nearly normal status.

PINE CREEK

2,560 Acres

		Trees on strip					Trees per acre of strip				
		New attacks					Green trees				
: Acres :		P.Pine:					P.Pine :				
No. of : of :		Generation:					Generation:				
strips :	strip:	1st	2nd	D.F.:	P.P.:	D.F.:	1st	2nd	D.F.:	P.P.:	D.F.
1	40	0	1	0	273	284	0	.025	0	6.8	7.1

<u>Total number of infested trees on unit:</u>				P.P., 1st generation	none
				2nd "	64
				Total	64
				D.F.	none

Percent of stand killed 1939: P.P. .4
D.F. none

The Pine Creek drainage passes through a steep narrow canyon for about two miles near the mouth. There is very little timber in this lower part except a few Douglas fir along the creek. At the upper end of the canyon the drainage broadens out into open meadows and farm

land that extends for a width of about one-half mile across the bottom. Fair stands of ponderosa pine and Douglas fir are to be found on the hillsides surrounding the meadows. A small sawmill is in operation in the drainage and probably cuts a few thousand board feet annually.

SPRING CREEK

		Trees on strip					Trees per acre of strip				
		New attacks		Green trees		New attacks		Green trees			
Acres	P. Pine					P. Pine					
No. of strips	of strip	Generation				Generation					
	1st	2nd	D.F.	P.P.	D.F.	1st	2nd	D.F.	P.P.	D.F.	
3	88	9	6	3	1,299	632	.102	.068	.034	14.8	7.2

<u>Total number of infested trees on unit:</u>	P.P., 1st generation	718
	2nd "	479
	Total	1,197
	D.F.	239

Percent of stand killed 1939: P.P. 1.1
D.F. .5

Although 15 1939-attacked trees were recorded on the sample strip examined in the area, 9 were marked as first generation attacks. In this drainage, which was the first area cruised on the survey, considerable difficulty was experienced in determining first generation 1939-attacked trees from those attacked late in 1938, and it is felt that there is a reasonable possibility that some of the trees recorded

as 1939, first-generation attacks were late 1938-attacked trees.

The infestation is largely confined to the dryer areas along the ridge points and near the mouth of the drainage. A few of the infested ponderosa pine on the high ridge between the forks of the creek have occasional mountain pine beetle attacks besides the usual western pine beetle attacks. The mountain pine beetles no doubt came from the lodgepole stands which have suffered a severe past loss at a slightly higher elevation.

A light infestation in the Douglas fir by the Douglas fir beetle was recorded. Besides the three infested fir found on sample strips, four were seen outside the strip boundaries.

At a higher elevation in the head of the drainage and as far east and west as could be seen a past infestation of the mountain pine beetle has completely destroyed a large stand of whitebark pine. Only in a very few instances was a surviving green pine seen in the area and these few were small in size.

SQUAW CREEK

5,280 Acres

		Trees on strip					Trees per acre of strip				
		New attacks					Green trees				
		P.Pine					P.Pine				
		Generation:					Generation:				
No. of strips	of strip	1st	2nd	D.F.	P.P.	D.F.	1st	2nd	D.F.	P.P.	D.F.
2	80	4	3	0	903	548	.050	.037	0	11.3	6.8

Total number of infested trees on unit:	P.P., 1st generation	264
	2nd "	195
	Total	459
	D.F.	0

Percent of stand killed 1939: P.P. .8
D.F. 0

The Squaw Creek drainage lies adjacent and east of Spring Creek, being separated only by high rocky ridges which are lightly timbered with ponderosa pine.

The stands in the Squaw Creek drainage are mixed ponderosa pine and fir in which the Douglas fir predominates on the northeastern slopes.

An estimated 75 percent of the ponderosa pine along a ridge on the southwestern side of Squaw Creek above a small sawmill has been killed during the past three or four years. The 1939 infestation, however, seems to be greatly reduced in the locality, for only three 1939 attacks were found in the vicinity of the kill.

While considerable old kill was reported in the drainage, the greater part of the 1939 infestation was found in Papoose Creek, a tributary of Squaw Creek. The infestation in Papoose Creek has been active for only two or three years and has apparently killed about the same amount of timber each year. On 36 acres of sample strip in Papoose Creek six 1939-attacked ponderosa pine were recorded, of which three were first and three were second-generation attacks. However, because of a better stocking of pine in the drainage the percentage of stand killed is but little higher than that in Squaw Creek.

Undoubtedly this area should be closely watched during the next few years.

INDIAN CREEK

2,880 Acres

		Trees on strip					Trees per acre of strip				
		New attacks					Green trees				
		P.Pine					P.Pine				
		Generation:					Generation:				
No. of strips	of strip	1st	2nd	D.F.	P.P.	D.F.	1st	2nd	D.F.	P.P.	D.F.
2	40	0	0	0	65	131	0	0	0	1.6	3.3

Total number of infested trees on unit: P.P., 1st generation 0
 2nd " 0
 Total 0
 D.F. 0

Percent of stand killed 1939: P.P. 0
 D.F. 0

The timber stands in the Indian Creek drainage are mixed ponderosa pine and Douglas fir, with the fir comprising 60 percent of the stand. Most of the timber was found to be of a young age class with only a small percentage of mature timber. The mature patches of timber were found largely in the west fork and in the heads of Brushy Gulch and Cow Creek. Only about 15 percent of the stands on the eastern side of Indian Creek was found to be mature.

No infestation was recorded on the sample strips run in the area and no reports of any infestation were given.

SAGE CREEK

1,920 Acres

		Trees on strip					Trees per acre of strip				
		New attacks					Green trees				
		P.Pine					P.Pine				
		Generation:					Generation:				
No. of strips	of strip	1st	2nd	D.F.	P.P.	D.F.	1st	2nd	D.F.	P.P.	D.F.
1	19	0	0	0	395	161	0	0	0	20.8	8.5

Total number of infested trees on unit: P.P. 1st generation 0
 2nd " 0
 Total 0
 D.F. 0

Percent of stand killed 1939: P.P. 0
 D.F. 0

The timber stands of the Sage Creek drainage are confined to a basin about two miles from the mouth of the creek. The stands are mixed ponderosa pine (85 percent) and Douglas fir (15 percent). Most of the mature pine in the east fork of Sage Creek has been logged to about 15 chains above the creek.

While no 1939-attacked trees were recorded on the sample strip run in the area, one 1939 second-generation attack was found off the strip and three large groups of old insect kill were seen which varied from 32 to 70 dead trees. About 90 percent of these dead trees were from 8 to 10 inches in diameter and had been killed by the mountain pine beetle, probably during the time of the severe infestation in the lodgepole stands on the forest. Only an occasional old western-pine-beetle-killed tree was seen.

SILVERLEAD CREEK

2,560 Acres

		Trees on strip					Trees per acre on strip				
		New attacks					New attacks				
		Green trees					Green trees				
		P.Pine					P.Pine				
No. of	of	Generation					Generation				
strips	strip	1st	2nd	D.F.	P.P.	D.F.	1st	2nd	D.F.	P.P.	D.F.
1	70	0	0	0	149	508	0	0	0	2.1	7.3

Total number of infested trees on unit: P.P., 1st generation 0
2nd " 0
Total 0
D.F. 0

Percent of stand killed 1939: P.P. 0
D.F. 0

The timber types in the Silverlead drainages is 65 percent Douglas Fir and 35 percent ponderosa pine. A small amount of spruce

occurs along the creek in the Little Silverlead drainage. The stands are concentrated largely in the main Silverlead drainage near the head, about three miles from the mouth of the creek. There is no timber on the ridge between the two creek, and the only timber in Little Silverlead consists of a narrow strip along the creek.

No recent insect damage was recorded on the sample strip examined in either drainage and no recent work was seen. The only insect damage reported was a severe kill of about 10 percent of the stand by the mountain pine beetle, which occurred several years ago.

WAGONHAMMER CREEK

1,920 Acres

		Trees on strip					Trees per acre on strip				
		New attacks					Green trees				
		P.Pine					P.Pine				
No. of	of	Generation					Generation				
strips	strip	1st	2nd	D.F.	P.P.	D.F.	1st	2nd	D.F.	P.P.	D.F.
1	28	1	0	0	414	355	.036	0	0	14.8	12.7

<u>Total number of infested trees on unit:</u>		P.P.,	1st generation	69
			2nd "	0
			Total	69
		D.F.		0

<u>Percent of stand killed 1939:</u>	P.P.	.2
	D.F.	0

The timber stands in the Wagonhammer drainage are limited to an area beginning three miles from the mouth of the creek and extending nearly to the top of the Stein Mountain ridge. In width, the timber extends three-fourths of the distance to the top of the ridge on the south and half way up the north side, where the type changes to Douglas fir and lodgepole pine. The stand is composed of 60 percent ponderosa pine and 40 percent Douglas fir.

There has been a severe killing in the ponderosa pine by the mountain pine beetle, which evidently ended about 1934. On some of the lower mountain ridges the destruction of small trees of 8 to 10 inches in diameter was practically complete.

Although evidence of a light infestation of the western pine beetle which seems to have existed in the area in a normal stage for several years was reported, no important recent infestation is to be found in the unit.

NORTH FORK OF THE SALMON RIVER

Much of area in the north fork of the Salmon river is spotted with scattered stands of ponderosa pine, Douglas fir and mixed stands of both. The following three units, Hull Creek-Bill's Canyon, Hughes Creek, and Gibbonsville, while not including all of the scattered timber, do cover the main bodies and will indicate the general conditions of all the stands.

HULL CREEK-BILL'S CANYON

4,160 Acres

		Trees on strip					Trees per acre on strip				
		New attacks		Green trees			New attacks		Green trees		
No. of strips	of strip	Acres	P.Pine	Generation	D.F.	P.P.	D.F.	P.Pine	Generation	D.F.	P.P.
			1st	2nd	D.F.	P.P.	D.F.	1st	2nd	D.F.	P.P.
3	82	2	0	0	0	728	960	.024	0	0	8.9
											11.7

<u>Total number of infested trees on unit:</u>		P.P.	1st generation	100
			2nd	0
			Total	100
		D.F.		0

<u>Percent of stand killed 1939:</u>	P.P.	.3
	D.F.	0

The timber stands of Hull Creek are 75 percent ponderosa pine and 25 percent Douglas fir in the main drainage. The type extends from the breaks of the ridge on the north to about half way up on the south side, where it changes to 90 percent fir. In the west fork the type is predominantly Douglas fir, with a narrow strip along the creek from 10 to 15 chains in width and on the points of the small ridges.

No infestation was recorded in the west fork although there is evidence of an old kill where the type blends into lodgepole and was caused by the mountain pine beetle that swept the forest several years ago.

In the main fork of Hull Creek two first-generation attacks by the western pine beetle were recorded on the sample strips and a few others were seen in the stands, but the infestation is considered to be light.

In addition to the Hull Creek drainage a small area across the north fork of the Salmon in Bill's Canyon was surveyed. The timbered area occurs about one and one-half miles from the mouth of the canyon and is to be found in a small pocket of not over one-half section in area. The pine type was found to have been 25 percent killed by the mountain pine beetle epidemic in the past, but no recent infestation of any kind was recorded.

HUGHE'S CREEK

5,120 Acres

		Trees on strip					Trees per acre on strip				
		New attacks					Green trees				
		P.Pine					P.Pine				
No. of	of	Generation					Generation				
strips	strip	1st	2nd	D.F.	P.P.	D.F.	1st	2nd	D.F.	P.P.	D.F.
2	56	0	0	0	858	266	0	0	0	15.3	4.7

Total number of infested trees on unit: P.P., 1st generation 0
 2nd " 0
 Total 0
 D.F. 0

Percent of stand killed 1939: P.P. 0
 D.F. 0

In the Hughes Creek drainage the ponderosa pine type is about two miles wide and four miles long. It is mixed with Douglas fir, which comprises 25 percent of the stand. The type changes to fir and lodgepole in the heads of Humbug, Ditch, and Ramshackle Creeks.

No recent infestation was recorded or seen in the area in either ponderosa pine or Douglas fir. An older kill caused by the mountain pine beetle has depleted the pine stand from 5 to 10 percent.

Much of the mature Douglas fir has been logged especially along the creeks and the residual stand is largely of a younger age. Logging is now in progress in the older, mature ponderosa pine, and the remaining pine ranges from reproduction to 18 inches in diameter and appears to be in a healthy condition.

GIBBONSVILLE

12,160 Acres

		Trees on strip				Trees per acre on strip			
		New attacks		Green trees		New attacks		Green trees	
		Acres:	P.Pine			P.Pine			
No. of	of	Generation:				Generation:			
strips	strips	1st	2nd	D.F.	P.P.	D.F.	1st	2nd	D.F.
4	144	0	2	1	1,370	1,170	0	.014	.007
								9.5	8.1

Total number of infested trees on unit:		P.P.,	1st generation	0
			2nd	"
			Total	170
		D.F.		85

Percent of stand killed 1939:	P.P.	.15
	D.F.	.08

The Gibbonsville unit includes all of the ponderosa pine stands from Sheep Creek to the mouth of Pierce Creek on the north fork of the Salmon and up Dahlenega Creek to the mouth of Pierce Creek. The stands vary from one mile to one and one-half miles in width and are mixed pine and fir in about equal amounts.

The light western pine beetle infestation in the ponderosa pine occurs in only an occasional tree and there is no appreciable infestation in the Douglas fir stands. Considerable old kill in the pine stands from the mountain pine beetle infestation of several years past is noticeable, as is the case in all of the stands in the vicinity of the north fork.

PANTHER CREEK

The stands in the Panther Creek drainage are predominantly of Douglas fir type, and the entire timbered area was surveyed as one unit. There are some small areas of ponderosa pine above Forney, Idaho, and on an area on the head of Silver Creek. No sample strips were run

in the pine stands of Silver Creek, but an investigation of the area disclosed very little infestation.

PANTHER CREEK

19,200 Acres

		Trees on strip				Trees per acre on strip			
		New attacks		Green trees		New attacks		Green trees	
No. of strips		Acres		P.Pine		P.Pine		P.Pine	
		of		Generation		Generation		Generation	
		1st		2nd		D.F.		D.F.	
		P.P.		D.F.		P.P.		D.F.	
5	145	0	2	16	365	2,053	0	.014	.110
								2.5	14.1

Total number of infested trees on unit: P.P., 1st generation 0
 2nd " 269
 Total 269
 D.F. 2,112

Percent of stand killed 1939: P.P. .5
 D.F. .8

The timber type in the Panther Creek drainage is approximately 95 percent Douglas fir and 5 percent ponderosa and lodgepole pine. The stands extend from Napias Creek up the drainage to a point near Forney, and are about two miles in width except where the timber extends up the tributaries of Panther Creek. Aside from the ponderosa pine found mixed with the Douglas fir stands, there are a few areas of one or two sections where the pine predominates. The only attacks in ponderosa pine recorded were in the Hot Springs Creek drainage near the mouth of Panther Creek. Hot Springs Creek is nearly opposite Clear Creek and contains a greater proportion of pine than areas farther up Panther Creek.

The infestation in the Douglas fir is scattered throughout the drainage, usually in groups, generally on the points of steep ridges on the east side of Panther Creek. The insect-killed groups of from

11 to 20 trees, including dead trees from several years activity, indicate that the infestation has been active for some time. The area of greatest activity ranges from Musgrove Creek north to Fawn Creek, and may be plainly seen from the road, as the groups of dead and dying trees are usually within from 10 to 15 chains of the creek.

Strips run in other parts of the Panther Creek drainage showed a general infestation of very light proportions.

Respectfully submitted,

Tom T. Terrell

Senior Scientific Aide

ANALYSIS OF 1939 SURVEY DATA
AND
RECOMMENDATIONS FOR CONTROL

James C. Evenden
Senior Entomologist

There is not a great deal to add to Mr. Terrell's report depicting the present status of insect conditions on the Salmon National Forest. It is gratifying to report that there are no extremely serious bark beetle infestations. Severe losses of both ponderosa pine and lodgepole pine occurred some few years ago in connection with the epidemic of the mountain pine beetle which swept through this area. This outbreak has subsided and at this time the greatest timber losses are occurring from attacks of the western pine beetle in the ponderosa pine.

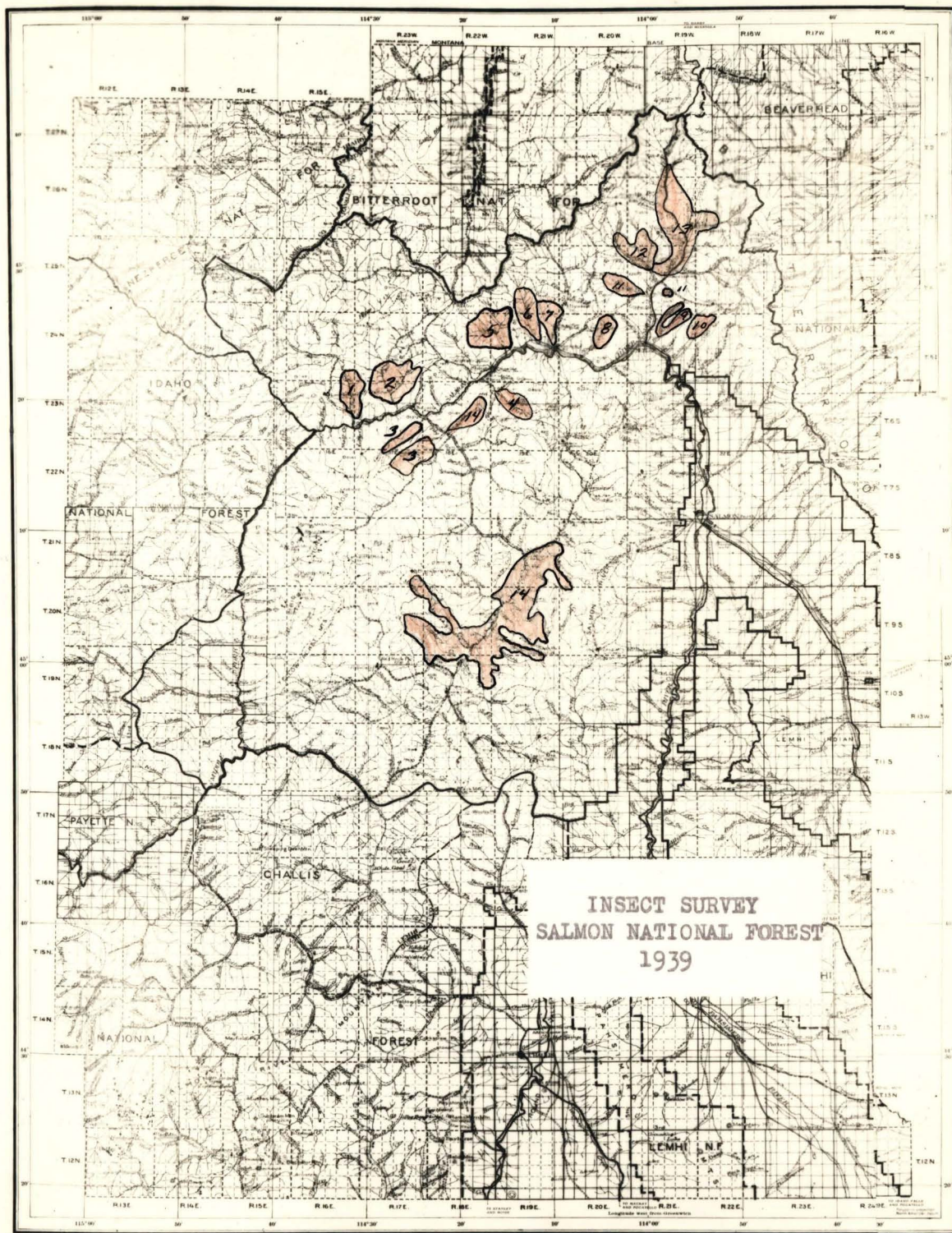
A preliminary report of the potentially serious infestation of the western pine beetle within the ponderosa pine stands of the Colson Creek drainage was submitted some few weeks ago, and steps have been taken by the Forest Supervisor for the treatment of the infested trees. Although the survey data obtained from this area were used in arriving at the estimate of 708 infested trees, Mr. Terrell feels that due to circumstance peculiar to the survey of this area the estimate will prove to be somewhat high. Although data obtained from surveys of this character, when applied to fairly large acreages, provides sufficiently accurate information for the purpose intended, the work is not intensive enough to permit unquestionable estimates for small areas. Such discrepancies occur when the sample strips or plots obviously fail to depict true ^{conditions} within a small area, making it necessary to temper such estimates with the reaction with which the officer in charge has

toward the existing situation.

The Spring Creek area contains an infestation of the western pine beetle in ponderosa pine that can be considered as potentially dangerous. With a total infestation of .17 of an infested tree per acre, which represents the total loss from both generations of this beetle for the year 1939, the situation warrants a check survey during the 1940 season.

In the Squaw Creek drainage a situation exists that should receive further consideration. Although the present infestation of the western pine beetle is not serious, in one area adjacent to a sawmill, it was estimated that 75 percent of the ponderosa pine trees had been killed by this insect during the past three years. It is possible that the methods of logging being practiced in connection with this operation may have been responsible for this apparent sporadic build-up in the severity of the infestation. A rather common practice often adopted by small operators is to cut a quantity of logs during the winter and early spring, that are left in the woods until late summer or fall before being taken to the mill for sawing. These logs attract overwintering broods of the western pine beetle, and upon emergence standing adjacent trees will be infested if more freshly cut material is not available. A change in this practice of cutting will eliminate further losses.

These three areas are the only situations that are alarming at this time and of sufficient importance to warrant further consideration. Check surveys of these areas will be made by the Bureau of Entomology and Plant Quarantine during October 1940.



1. Colson Cr.
2. Owl Cr.
3. Clear Cr.
4. Pine Cr.
5. Spring Cr.

6. Squaw Cr.
7. Indian Cr.
8. Sage Cr.
9. Silverlead
10. Wagonhammer

11. Hull Cr.-Bill's Canyon
12. Hughes Cr.
13. Gibbonsville
14. Panther Cr.